

General Information**1992**

**Video: 4 Heads Rotary
Audio: Fixed Head 1CH
Covers Models
Akai VS-F441/F450
Akai VS-F455/F490
Akai VS-F497**

Matrix

Item	See Model
Mechanical Parts View	Akai VS-422/425 89/90 Book.
Mechanical Adjustments	Akai VS-F10/F11 91/92 Book.
Replacement of Idler	Akai VS-F410
Back Tension Adjustment	Akai VS-F260
Power Supply - VS-F490	Akai VS-F260
Power Supply - VS-F440	Akai VS-F260
Power Supply - VS-F441/F450/ F455/F490/F497	Akai VS-F260
Main Diagram 1/3	Akai VS-F260
Main Diagram (B)	Akai VS-F260
Operation (A)	Akai VS-F260
VPST/PDC	Akai VS-F260
VIF Unit	Akai VS-F260
R/C Others	Akai VS-F260

**Head Motors and
Miscellaneous**

Part No.	Description
All models:	
BV-V1123A410B	Lower Drum BLK X450DGN
BV-V1123A420B	Upper Drum BLK X450EGN
BM-401296J1	Motor E20EL89 (Drum Motor)
For Models: VS-F440EA/EDG/ED1/EK/EM/EO/ EOG-V/EOH VS-F441EA/F450-EOH VS-F455EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head E HVFME0020A
For Models: VS-F480EK-V/EOG-V VS-F490EM/EO/EOH/ES VS-F497EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head HVFME0020A
For Models: VS-F480EK-V/EOG-V VS-F490EM/EO/EOH/ES VS-F497EOH	
BM-400682J1	Motor DFX-67B3VWB1 (Capstan Motor)
BM-387503J	Motor Part (Loading Motor)

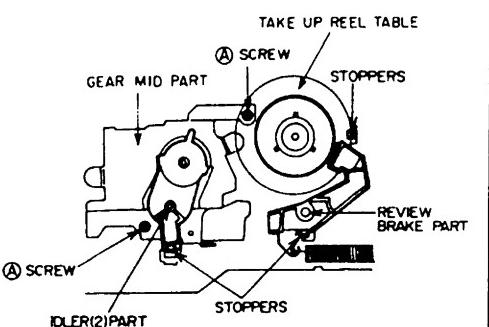
Recommended Safety Parts

Item	Part No.	Description
Models: EA/EDI		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
D18	ED-511907	D Silicon 1N4002 100/1.0A
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCPVT1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5 ERD2FCV1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR 2SB1185 E,F
TR3, TR4, TR5	ET-405622J	TR 2SD2061 E,F
TR6	ET-391025J	TR 2SD2012
Model: EM		
C101	EC-389414J	C CE V DE7 B102K 400AC
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D8	ED-386226J	D Schottky RB100AT-32T26 30/1
D16	ED-307572	D Silicon H 1SS131
D17, D18, D71	ED-511907	D Silicon 1N4002 100/1.0A
D72, D73, D74	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
D101	ER-408375J	R Fuse V TO5RF25SCPVT1/4WR12K
FR1	ER-400605J	R Fuse V TO5 ERD2FCV1/4W15ROG
FR2	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR3	ER-405441J	R Fuse V TO5RF25SCVTP1/4WR68K
FR4	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR5	ER-401039J	R Fuse V TO5ERD2FCV 1/4W 4R7J
RL101	EQ-400153J	Relay POW AG2013 1TR 12V
TR1, TR5	ET-366365	TR 2SB1185 E,F
TR9, TR13	ET-405622J	TR 2SD2061 E,F
TR2, TR7	ET-366168	TR 2SD1292 Q,R
TR4	ET-405622J	TR 2SD2061 E,F
TR12	ET-404195J	TR 2SC4486 S,T T05
TR107	ET-404195J	IC BA6121
IC1	EI-381575J	Trans POW V1130 EA (EM)
19A	BT-410487J	Trans POW V1130 ES (ED1)
19B	BT-410489J	Trans POW V1130 EM (EM)
19C	BT-410488J	
Models: F440EK/F490ES		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCP1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5ERD2FCV 1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR2SB1185 E,F
TR3 - TR6	ET-405622J	TR2SD2061 E,F
Model: F480EK		
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D8, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D17, D18, D71	ED-511907	D Silicon 1N4002 100/1.0A
D72, D73, D74	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR1	ER-408375J	R Fuse V TO5 RF25SCPVT1/4WR12K
FR2	ER-400605J	R Fuse V TO5 ERD2FCV 1/4W15ROG
FR3	ER-400689J	R Fuse V TO5 RF25SCVTP1/4WR68K
FR4	ER-405441J	R Fuse V TO5 RF25SCVTP1/4WR27K
FR5	ER-401039J	
TR1, TR5	ET-366365	TR 2SB1185 E,F
TR9, TR13	ET-405622J	TR 2SD2061 E,F
TR12	ET-404195J	TR 2SC4486 S,T T05
BT-403872J	Trans Pow V1130 EK (440EK)	
BT-403883J	Trans Pow V1130 EOG-V (480EK)	
BT-410489J	Trans Pow V1130 ES (490ES)	
Model: F480EK		
IC1	EI-381575J	IC BA6121
TR2, TR7	ET-405622J	TR 2SD2061 E,F
TR4	ET-404195J	TR 2SC4486 S,T T05
BT-403872J	Trans Pow V1130 EK (440EK)	
BT-403883J	Trans Pow V1130 EOG-V (480EK)	
BT-410489J	Trans Pow V1130 ES (490ES)	

Mechanical Parts List

Description	Part No.	Description	Part No.	Description	Part No.
All Models:		Slider Front Loading	ML-387428J	SP Pull Main Brake	ZG-387320J
Head Drum Block	MA-38747J3	Slider Pinch Part	ML-387431J1	SP Pull Review Brake	ZG-387323J
Base Drum	ZS-563444	SLIT W17X032X025PSL	ZW-374445	SP Pull Tension (2)	ZG-395470J
BID2X08STL CMT	ZS-379405	SP Loading Brake	ZG-387467J	SP Push A/C	ZG-387438J1
BID3X06STL CMT	ZS-321298	SP Plate Earth	ZG-392294J	SP Torsion Arm Damper	ZG-395567J
BID3X08STL CMT		SP Plate Holder	ZG-387348J1	SP Torsion Damper (S)	ZG-387421J
DT BID30X06STL CMT		SP Pull Main Brake	ZG-387320J	SP Torsion Damper (T)	ZG-388290J1
C080	ZS-389853J	SP Pull Review Brake	ZG-387323J	SP Torsion Joint (2)	ZG-392831J
Earth Brush Part AG	VT-401282J	SP Push Tension	ZG-387272J	SP Torsion Load (S)	ZG-387417J
Holder FPC	SZ-387388J	SP Push A/C	ZG-387438J1	SP Torsion Load (T)	ZG-387418J
Lower Drum BLK X450EGN	BV-V1123A410B	SP Torsion Damper (S)	ZG-395567J	SP Torsion Release	ZG-387420J1
MOTOR E20EL89 (Drum Motor)	BM-401296J1	SP Torsion Damper (T)	ZG-387421J	SP Torsion Review	ZG-387282J
Holder FPC	SZ-387388J	SP Torsion Joint (2)	ZG-392831J	ST BID30X06STL CMT	ZS-358936
Lower Drum BLK X450EGN	BV-V1123A410B	SP Torsion Load (S)	ZG-387417J	ST BID30X12STL CMT	ZS-336714
MOTOR E20EL89 (Drum Motor)	BM-401296J1	SP Torsion Load (T)	ZG-387418J	Tension Arm Blk F600EA	BL-V1123A050A
Holder FPC	SZ-387388J	SP Torsion Release	ZG-387420J1	Holder Lever Tension	SZ-3872631J4
Holder FPC	SZ-387388J	SP Torsion Review	ZG-387282J	Tension Band Part	ML-390768J4
Holder FPC	SZ-387388J	Holder FPC	ZG-387282J	Tension Brake Part	MZ-395471J3
For Models:			For Models:		
VS-F490EM/EO/EOH/ES			VS-F490EM/EO/EOH/ES		
VS-F497EOH			VS-F497EOH		
VS-F480EK-V/EOG-V			VS-F480EK-V/EOG-V		
VS-F490EM/EO/EOH/ES			VS-F490EM/EO/EOH/ES		
VS-F497EOH			VS-F497EOH		
For Models:			For Models:		
VS-F440EA/EDE/ED1/EK/EM/EO/EOH			VS-F440EA/EDE/ED1/EK/EM/EO/EOH		
VS-F441EA			VS-F441EA		
VS-F450EOH			VS-F450EOH		
VS-F455EOH			VS-F455EOH		

Replacement of the Gear Mid Part (JFX Only)



- 1) Remove the REVIEW BRAKE PART and IDLER (2) PART.
- 2) Release the stopper of the TAKE UP REEL TABLE, then remove it.
- 3) Remove the two "A" screws then replace the GEAR MID PART as shown above.
- 4) Reassemble in reverse order.

Electrical Adjustments

Precautionary items prior to adjustments

1. The colour bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV).

The following test tapes are required:

Test tape	Parts No.
TF-527BL	AT-711880
TF-530RFS	AT-751775
TF-532CBS	AT-751360
TF-553AT	AT-751785

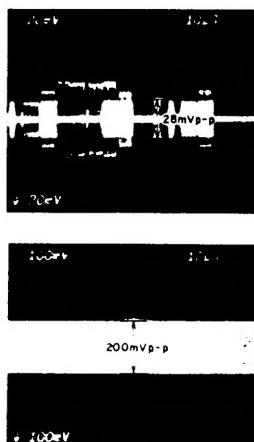
STEP ADJUSTMENT ITEM

1. MODE and INPUT SIGNAL/TEST TAPE
2. TEST POINT and ADJ part
3. REMARKS (*) & RESULT (*)

ADJ part
Test point

6 VIDEO REC CURRENT (LP MODE)

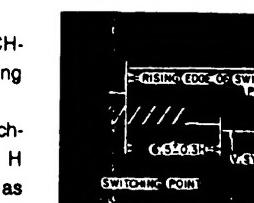
1. "REC" (LP MODE), PAL colour bar signal
2. P2 (REC.CURR) ① pin, ② pin & VR1 (REC-CHROMA), VR2 (REC-Y)
3. • Connect an oscilloscope's CH-1 to P2 (REC.CURR) ① pin and CH-2 to ② pin.
- Set the oscilloscope's display mode to "ADD" mode and CH-2 polarity to "INVERTED". (Make sure to set the oscilloscope's "volt / div" SW position where the waveform is not distorted and CH-2 position should be the same as CH-1.)
- Turn the VR2 (REC-Y) fully, counterclockwise.
- * Adjust VR1 (REC-CHROMA) so that the chroma REC current becomes 28 mVp-p at the burst signal area.
- * Disconnect the input signal, then adjust VR2 (REC-Y) so that the Y REC current becomes 200 mVp-p.



PRE AMP PCB

1 PB SWITCHING POINT

1. "PB", test tape TF-530RFS
 2. TP2 (SWP), VIDEO OUT & VR301 (SW.POINT)
 3. • Connect an oscilloscope's CH-1 to TP2 (SWP) for triggering and CH-2 to VIDEO OUT.
- * Adjust VR301 so that the switching point is positioned 6.5 H from the V-SYNC left edge as shown.



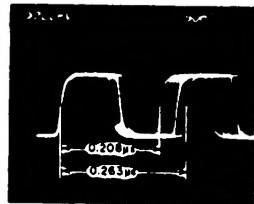
7 VIDEO PB LEVEL

1. "REC" → "PB", PAL colour bar signal
 2. VIDEO OUT & VR404 (PB LEVEL)
 3. • Connect an oscilloscope to VIDEO OUT
 - Make a recording on the tape, then play it back
- * Adjust VR404 so that the PB level becomes 1.0 Vp-p



5 CARRIER SET & DEVIATION

1. "REC", PAL colour bar signal
 2. TP401 (REC.Y) & VR402 (CARRIER), VR403 (DEVIATION)
 3. • Connect an oscilloscope to TP401 (REC.Y)
- * VR402 (CARRIER) : 0.263 μs (3.8 MHz)
- * VR403 (DEVIATION): 0.208 μs (4.8 MHz)

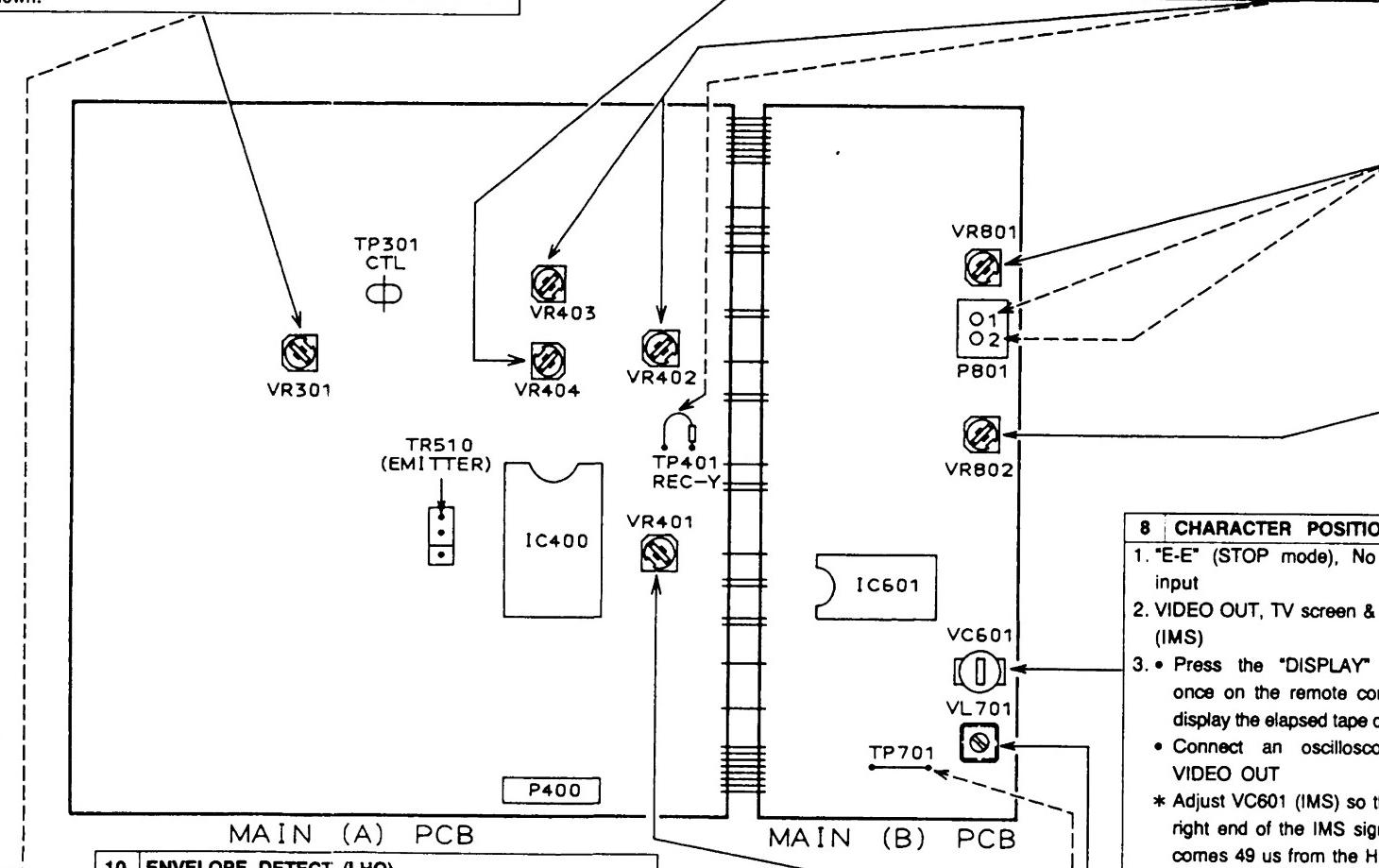


3 AUDIO REC BIAS

1. "REC", No signal input
 2. P801 ① pin, ② pin & VR801
 3. • Connect an AC voltmeter to P806 ① pin (GND side) and ② pin.
- (Never connect the AC voltmeter's GND to the VCR's ground.)
- * Adjust VR801 so that the reading on the AC voltmeter becomes 2.4 mV

2 AUDIO PB LEVEL

1. "PB", test tape TF-527BL
 2. AUDIO OUT & VR802
 3. • Connect AC voltmeter to AUDIO OUT
- * -5 dBs



10 ENVELOPE DETECT (I-HQ)

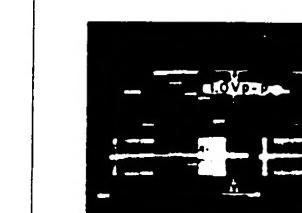
(This adjustment should be performed in the "TEST" mode.) To set the VCR to the "TEST MODE", press and hold both the "POWER" and "EJECT" buttons on the front panel, then plug in the AC power cord.

The TEST MODE can be cancelled by disconnecting the AC power cord or simply by pressing the RESET button on the front panel.

1. "REC" → "PB", PAL colour bar signal
 2. FL display & VR3, VR4
 3. • Record the PAL colour bar signal on the test tape TF-553AT and then play it back.
 - Observe the number which is displayed on the minute part of the FL display.
- * Adjust the VR3 so that the number displayed on the FL display becomes "8D". (SP MODE)
- * Adjust the VR4 so that the number displayed on the FL display becomes "8D". (LP MODE)

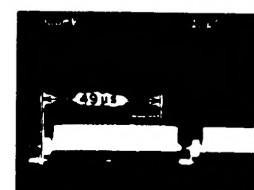
4 VIDEO E-E LEVEL

1. "E-E" (STOP mode), PAL colour bar signal
 2. VIDEO OUT & VR401 (E-E LEVEL)
 3. • Connect an oscilloscope to VIDEO OUT.
- * 1.0 Vp-p



8 CHARACTER POSITION

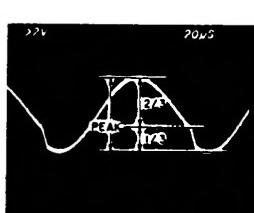
1. "E-E" (STOP mode), No signal input
 2. VIDEO OUT, TV screen & VC601 (IMS)
 3. • Press the "DISPLAY" button once on the remote control to display the elapsed tape counter.
 - Connect an oscilloscope to VIDEO OUT
- * Adjust VC601 (IMS) so that the right end of the IMS signal becomes 49 us from the H-SYNC as shown.

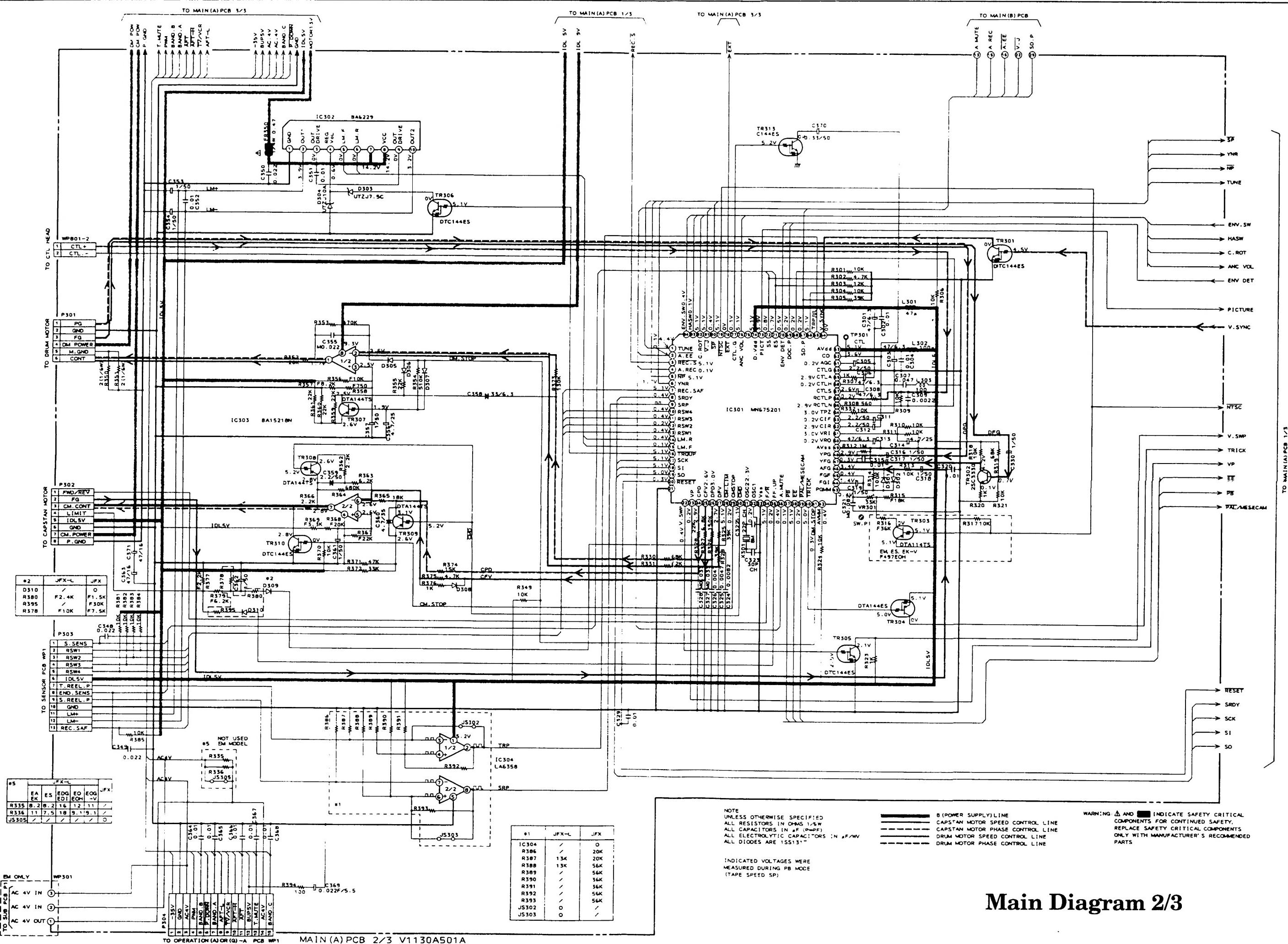


ON THE TV SCREEN
OHOOOMOOs

9 P/S AUTO SENSITIVITY (EM/EDG/EOG-V ONLY)

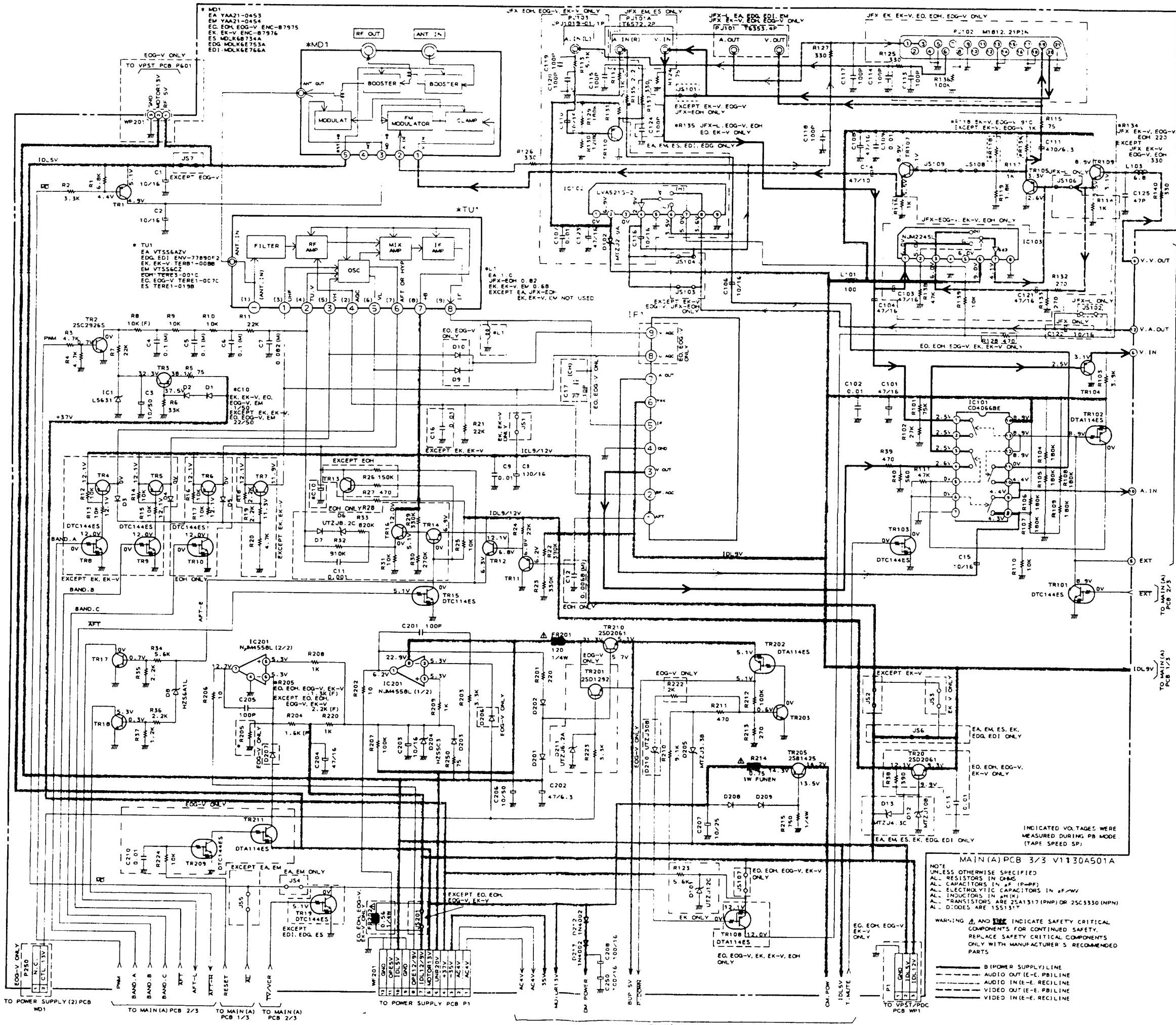
1. "E-E" (STOP mode), SECAM colour bar signal
 2. TP701 (P/S SENS), VL701 (P/S SENS)
 3. • Connect an oscilloscope to TP701 (P/S SENS)
- * Adjust the VL701 so that the distorted point of the waveform becomes 1/3 from the bottom, as shown.



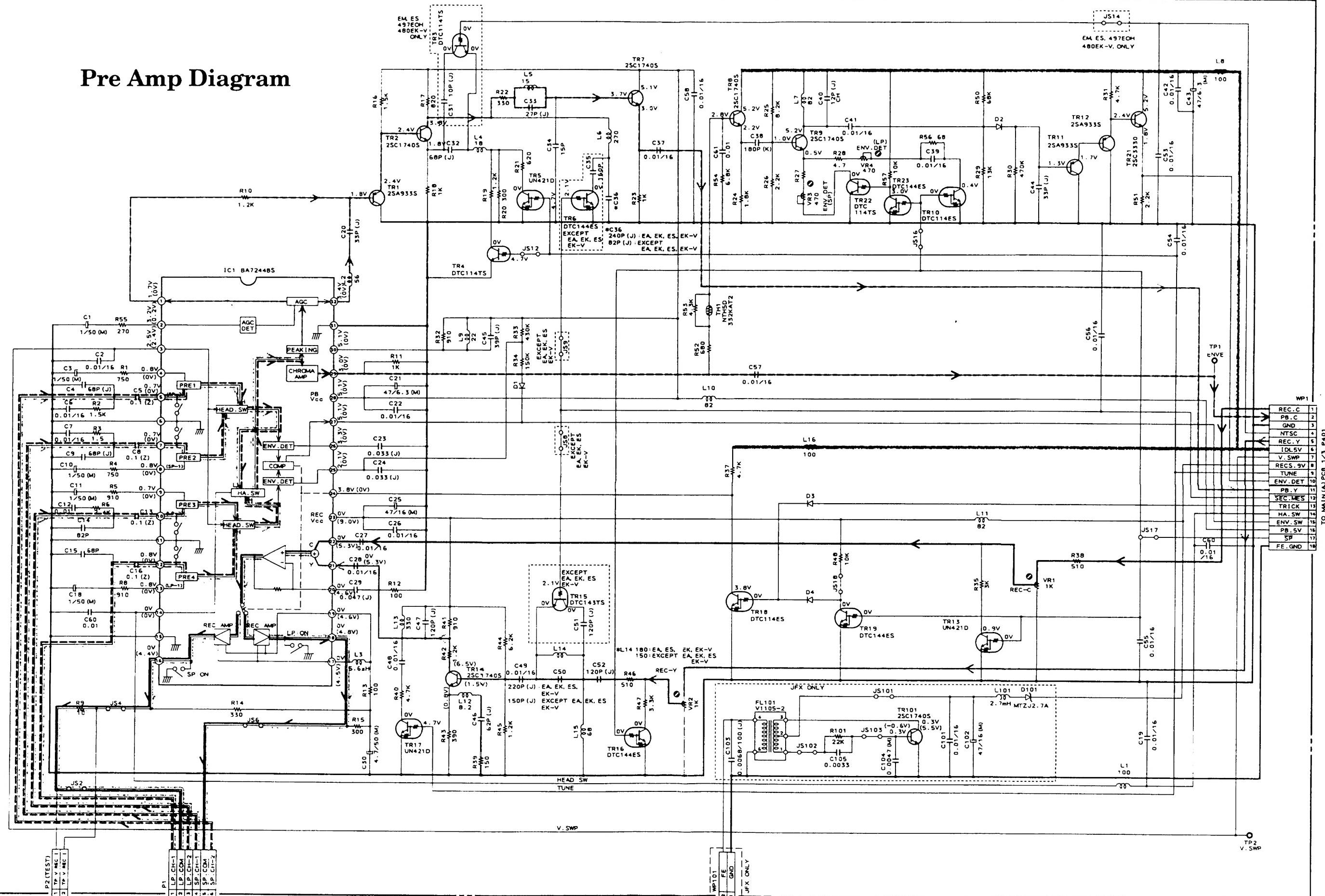


Main Diagram 2/3

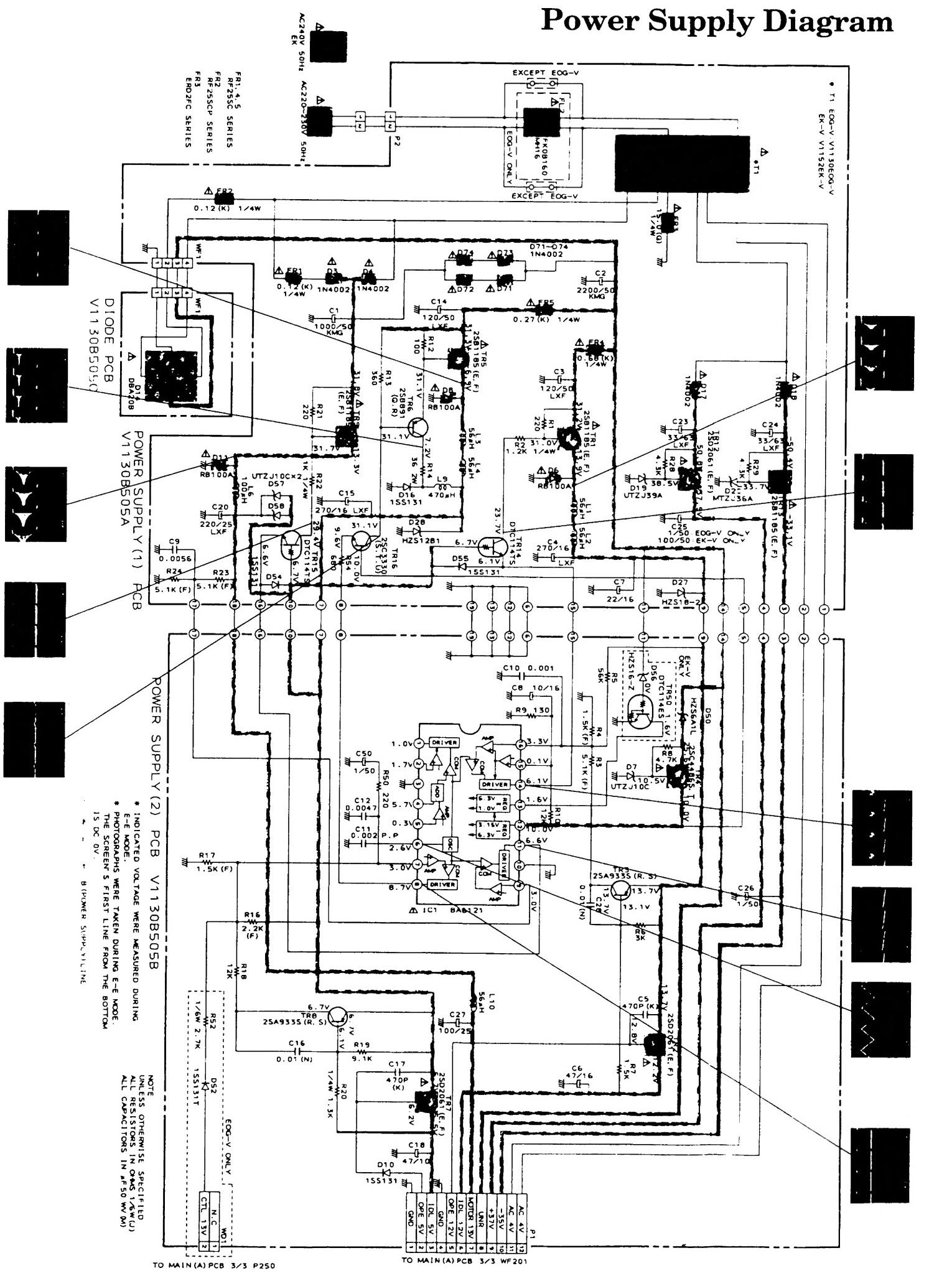
Main Diagram



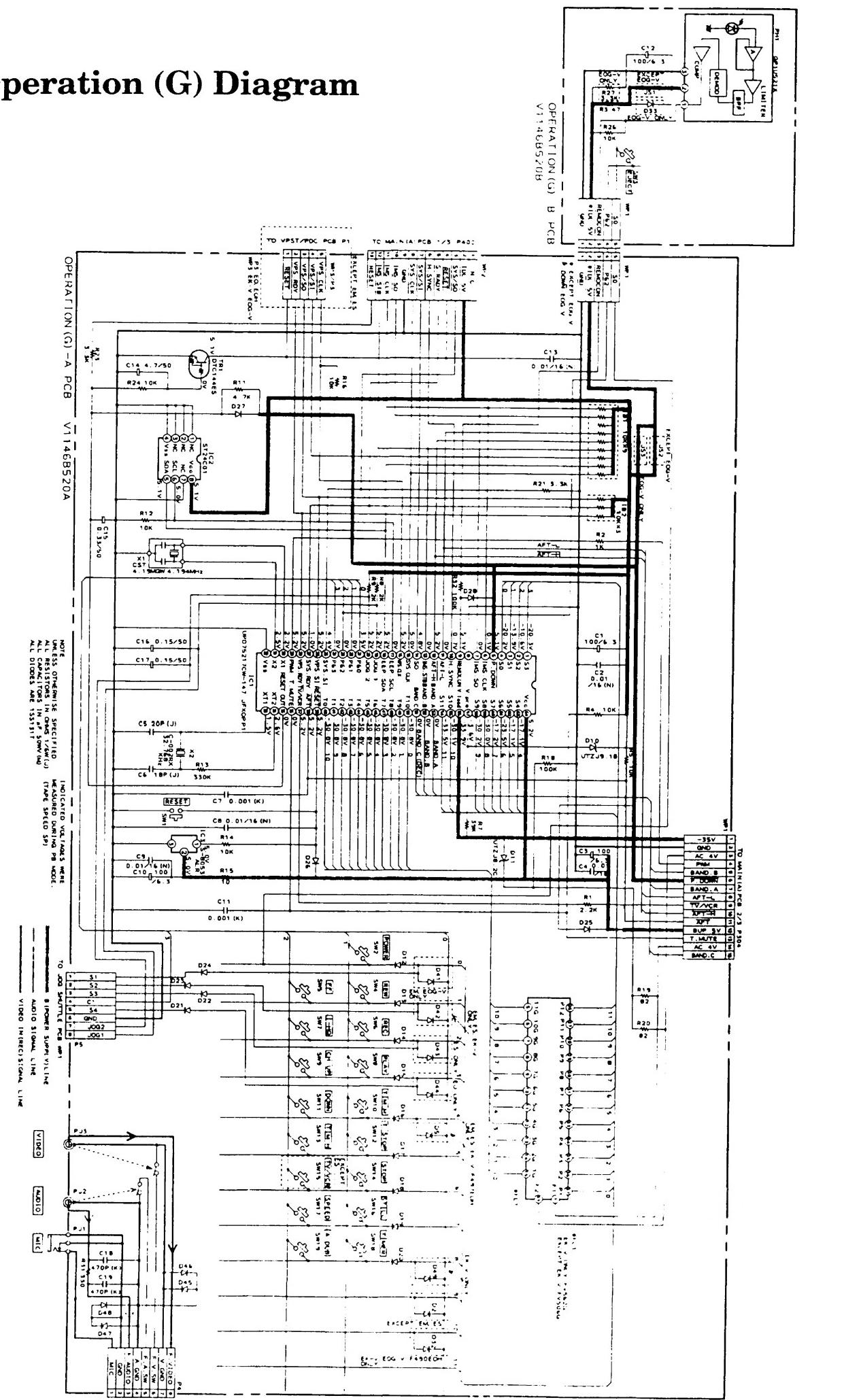
Pre Amp Diagram

JFX/JFX-L
PRE AMP

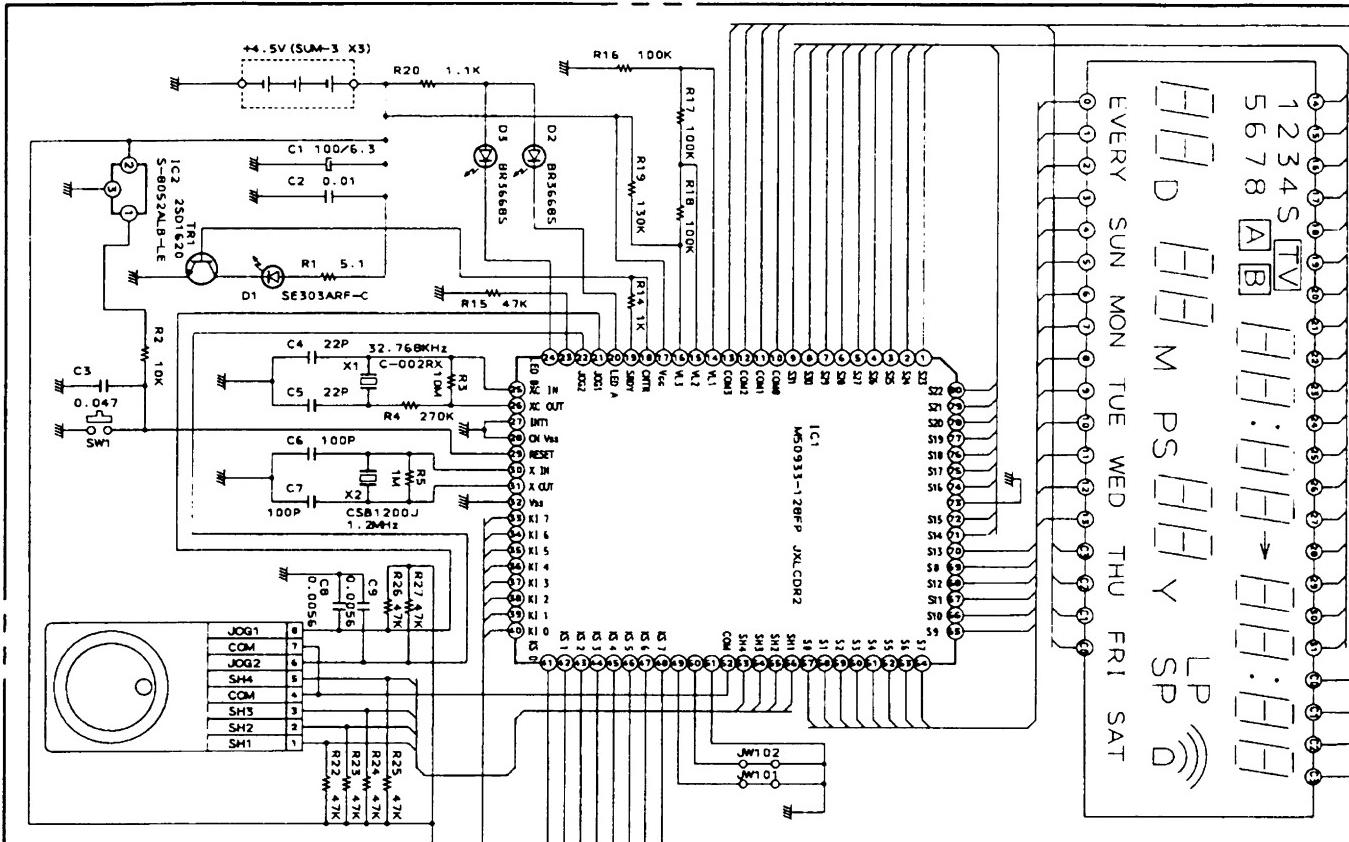
Power Supply Diagram



Operation (G) Diagram



Remote Control Diagram RC-V452E



NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/2W (1)
ALL CAPACITORS IN MF 50VW (1)

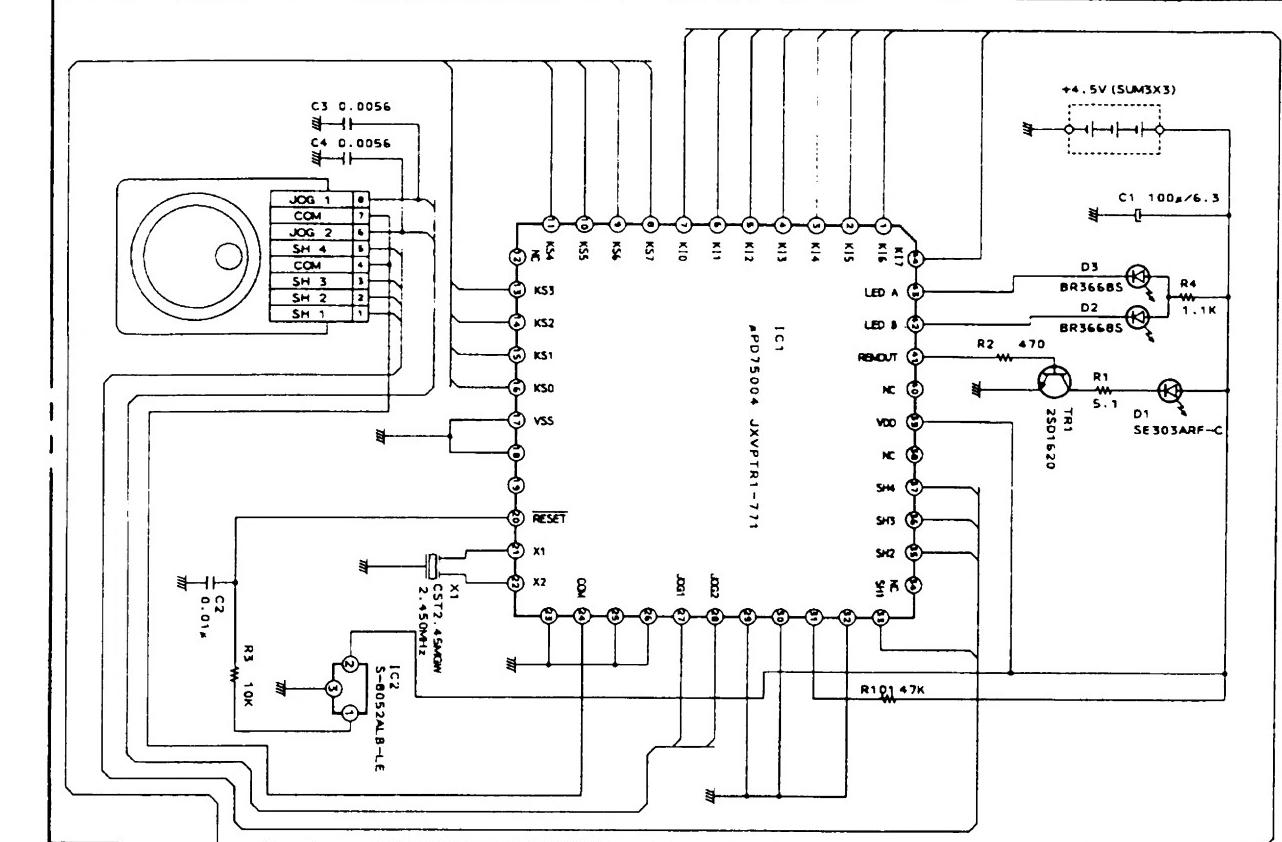
REMO-CON PCB B1040A5010

REMO-CON PCB B1040A5010

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/2W (1)

ALL CAPACITORS IN MF 50VW (1)

Remote Control Diagram RC-V451E



REMO-CON PCB B1040A5010

RC-V451E/G